WE CLAIM

1. A printhead chip for an inkjet printhead, the printhead chip comprising

a substrate; and

a plurality of nozzle arrangements that is positioned on the substrate, each nozzle arrangement comprising

nozzle chamber walls positioned on the substrate and a roof that define a nozzle chamber with the roof defining an ink ejection port in fluid communication with the nozzle chamber;

an ink-ejecting member that is positioned in the nozzle chamber, the ink-ejecting member being displaceable towards and away from the ink ejection port so that a resultant fluctuation in ink pressure within the nozzle chamber results in an ejection of ink from the ink ejection port;

at least one work-transmitting structure that is displaceable with respect to the substrate and is connected to the ink-ejecting member so that displacement of the work transmitting structure results in displacement of the ink-ejecting member;

an actuator that is connected to the work-transmitting structure, the actuator being capable of displacing the work transmitting structure upon receipt of an electrical drive signal; and

air chamber walls and a covering formation that is positioned over the actuator, the air chamber walls and the covering formation defining an air chamber in which the actuator is positioned, the roof, the work transmitting structure and the covering formation together defining a protective structure positioned in a common plane.

2. A printhead chip as claimed in claim 1, which is the product of an integrated circuit fabrication technique.

3. A printhead chip as claimed in claim 2, in which the substrate includes a silicon wafer substrate, a CMOS drive circuitry layer positioned on the silicon wafer substrate and an ink passivation layer positioned on the CMOS drive circuitry layer.

4. A printhead chip as claimed in claim 3, in which a plurality of ink inlet channels are defined through the substrate, with each ink inlet channel opening into a respective nozzle chamber.

5. A printhead chip as claimed in claim 4, in which the roof, the work transmitting structure and the covering formation are configured so that the protective structure is unitary.

6. A printhead chip as claimed in claim 3, in which the nozzle chamber walls are configured so that the nozzle chamber is generally rectangular in plan view, with the nozzle chamber walls including a pair of opposed sidewalls, a distal end wall and a proximal end wall.

7. A printhead chip as claimed in claim 6, in which the work-transmitting structure is pivotally mounted with respect to the substrate to define at least part of the proximal end wall, the work transmitting structure being connected to a proximal end of the ink-ejecting member so that the ink-ejecting member is angularly displaced towards and away from the ink ejection port upon pivotal displacement of the work-transmitting structure relative to the substrate.

8. A printhead chip as claimed in claim 7, in which the actuator has a fixed end that is fixed with respect to the substrate and a working end that is displaceable towards and away from the substrate, the working end being connected to the work-transmitting structure such that the work-transmitting structure is pivotally displaced upon displacement of the actuator towards and away from the substrate with the result that the ink-ejecting member is angularly displaced towards and away from the ink ejection port.

9. A printhead chip as claimed in claim 8, in which the actuator is in the form of a thermal bend actuator that is configured so that, on receipt of a driving signal from the electrical drive circuitry layer, the actuator bends towards the substrate, with the result that the work-transmitting structure pivots away from the nozzle chamber and the ink-ejecting member is angularly displaced towards the ink ejection port.

10. A printhead chip as claimed in claim 9, in which the work-transmitting structure defines a lever mechanism with an effort formation connected to the working end of the actuator, a load formation connected to the ink-ejecting member, a fulcrum formation interposed between the effort formation and the load formation and pivotally connected to the substrate and a lever arm formation interconnecting the effort, fulcrum and load formations, the lever arm formation defining an integral part of the protective structure, the roof, the lever arm formation and the cover formation being of a flexible material to permit the lever arm formation to pivot with respect to the roof and the cover formation.

11. An ink jet printhead that includes at least one printhead chip as claimed in claim 1.